

The present invention relates to a composition for caring for and/or treating and/or making up the nails of human beings, comprising a liquid organic phase including a volatile organic solvent, structured by a specific polymer. This composition is provided in particular in the form of a nail polish stick.

The makeup composition can also be applied to makeup accessories (support), such as false nails.

In nail polishes comprising an organic solvent medium, it is standard practice to thicken the organic phase with thickening agents.

The term "liquid organic phase" is understood to mean, within the meaning of the invention, an organic phase which is liquid at ambient temperature (25°C) and which is composed of one or more organic compounds which are liquid at ambient temperature, also known as organic solvents or oils, generally compatible with one another. Thickened compositions make it possible to make it easier to take the product from its container without significant loss, to distribute the polish over the surface of the nail or alternatively to be able to use the polish in sufficient amounts to obtain the desired cosmetic effect. Furthermore, the thickening agent makes it possible to prevent the sedimentation during storage of the pigments often present in nail polishes.

The use is known, for thickening the

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compositions, of clays such as organomodified
montmorillonites, such as disclosed in Application
GB-A-2021411. In point of fact, clays opacify the
composition and do not make possible the preparation of
5 a translucent composition. Furthermore, clays are often
formulated with an agent which promotes their swelling,
such as citric acid or orthophosphoric acid, which can
lead to instability of the composition.

10 Furthermore, nail polishes known to date are
generally provided in the form of a fluid composition
which is applied using a brush or alternatively a pen
(see in particular US-A-4 712 571).

15 The need thus remains for a composition which
does not exhibit the above disadvantages. Furthermore,
it is desirable to be able to have available a novel
nail polish pharmaceutical dosage form different from
the nail polishes known to date.

A subject matter of the invention is
specifically a composition for caring for and/or making
20 up and/or treating the nails which makes it possible to
overcome the abovementioned disadvantages.

The applicant has found, surprisingly, that
the use of specific polymers in combination with one or
more volatile organic solvents makes it possible to
25 obtain structured nail polishes, in particular a gel
and more particularly a stick, the application of which
to the nails results in a film having good cosmetic
properties.

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The invention applies not only to products for making up the nails but also to products for caring for and/or treating the nails.

More specifically, a subject matter of the invention is a structured nail polish composition comprising at least one liquid organic phase comprising at least one volatile organic solvent, the liquid organic phase being structured by at least one first polymer with a weight-average molecular mass of less than or equal to 100 000 comprising a) a polymer backbone having hydrocarbonaceous repeat units which are provided with at least one heteroatom and b) optionally functionalized pendent and/or end fatty chains which have from 6 to 120 carbon atoms and which are bonded to these hydrocarbonaceous units.

Another subject matter of the invention is a stick nail polish composition comprising an organic phase comprising a volatile organic solvent and a first polymer with a weight-average molecular mass of less than or equal to 100 000 comprising a) a polymer backbone having hydrocarbonaceous repeat units which are provided with at least one heteroatom and b) optionally functionalized pendent and/or end fatty chains which have from 6 to 120 carbon atoms and which are bonded to these hydrocarbonaceous units.

A further subject matter of the invention is a cosmetic process for caring for, making up or treating the nails, comprising the application, to the

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nails, of the composition, in particular cosmetic composition, as defined above.

Another subject matter of the invention is the use in a nail polish composition, for producing a stick, of a liquid organic phase comprising at least one volatile organic solvent and of a sufficient amount of a first polymer with a weight-average molecular mass of less than or equal to 100 000 comprising a) a polymer backbone having hydrocarbonaceous repeat units which are provided with at least one heteroatom and b) optionally functionalized pendent and/or end fatty chains which have from 6 to 120 carbon atoms and which are bonded to these hydrocarbonaceous units.

The nail polish composition of the invention can be provided in the form of a paste, solid, gel, cream or thickened liquid. It can be an oil-in-water or water-in-oil emulsion or a stiff or soft anhydrous gel. In particular, it is provided in the form cast as a stick or as a dish and more especially in the form of a stiff anhydrous gel, in particular an anhydrous stick. More especially, it is provided in the form of a stiff gel which can be translucent or transparent, the liquid organic phase forming the continuous phase.

The gelling of the solvent phase can be adjusted according to the nature of the heteroatom-comprising polymer used and can be such that a stiff structure in the form of a tube or stick is obtained.

The structuring polymer of the composition of

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the invention is a solid which is nondeformable at ambient temperature (25°C).

The term "functionalized chains" is understood to mean, within the meaning of the invention, an alkyl chain comprising one or more functional or reactive groups chosen in particular from amide, hydroxyl, ether, oxyalkylene or polyoxyalkylene, halogen, ester, siloxane or polysiloxane groups, the halogen groups including fluorinated or perfluorinated groups. In addition, the hydrogen atoms of one or more fatty chains can be at least partially substituted by fluorine atoms.

According to the invention, these chains can be bonded directly to the polymer backbone or can be bonded via an ester functional group or a perfluorinated group.

The term "polymer" is understood to mean, within the meaning of the invention, a compound having at least 2 repeat units and preferably at least 3 repeat units which are identical.

The term "hydrocarbonaceous repeat units" is understood to mean, within the meaning of the invention, a unit comprising from 2 to 80 carbon atoms and preferably from 2 to 60 carbon atoms, carrying hydrogen atoms and optionally oxygen atoms, which can be linear, branched or cyclic and saturated or unsaturated. In addition, these units each comprise from one to several heteroatoms which are

advantageously nonpendent heteroatoms and which are found in the polymer backbone. These heteroatoms are chosen from nitrogen, sulfur or phosphorus atoms and their combinations, optionally in combination with one or more oxygen atoms. Preferably, the units comprise at least one nitrogen atom, in particular one nonpendent nitrogen atom. Advantageously, these units additionally comprise a carbonyl group.

The heteroatom-comprising units are in particular amide units, forming a backbone of the polyamide type, or carbamate and/or urea units, forming a polyurethane, polyurea and/or polyurea/urethane backbone. These units are preferably amide units. Advantageously, the pendent chains are bonded directly to at least one of the heteroatoms of the polymer backbone. According to one embodiment, the first polymer comprises a polyamide backbone.

The first polymer can comprise, between the hydrocarbonaceous units, silicone units or oxyalkylenated units.

In addition, the first polymer of the composition of the invention advantageously comprises a total number of fatty chains which represents from 40 to 98% of the total number of the heteroatom-comprising units and of the fatty chains and better still from 50 to 95%. The nature and the proportion of the heteroatom-comprising units depends on the nature of the organic phase and is in particular similar to the

polar nature of the organic phase. Thus, the greater the polarity of the heteroatom-comprising units and the greater their proportion in the first polymer, which corresponds to the presence of several heteroatoms, the greater the affinity of the first polymer for polar oils. On the other hand, the lower the polarity of the heteroatom-comprising units, indeed even when they are nonpolar, or the lower their proportion, the greater the affinity of the first polymer for nonpolar oils.

The first polymer is advantageously a polyamide. Consequently, another subject matter of the invention is a structured nail polish composition comprising at least one liquid organic phase comprising at least one volatile organic solvent, the liquid organic phase being structured by at least one polyamide with a weight-average molecular mass of less than or equal to 100 000 comprising a) a polymer backbone having amide repeat units and b), optionally, optionally functionalized pendent and/or end fatty chains which have from 6 to 120 carbon atoms and which are bonded to these amide units.

Another subject matter of the invention is a stick nail polish composition comprising a volatile organic solvent and a first polyamide polymer with a weight-average molecular mass of less than or equal to 100 000 comprising a) a polymer backbone having amide repeat units and b) optionally functionalized pendent and/or end fatty chains which have from 6 to 120 carbon

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atoms and which are bonded to these amide units.

Preferably, the pendent fatty chains are bonded to at least one of the nitrogen atoms of the amide units of the first polymer.

- 5 In particular, the fatty chains of this polyamide represent from 40 to 98% of the total number of the amide units and of the fatty chains and better still from 50 to 95%.

- Advantageously, the first polymer and in particular the polyamide of the composition according to the invention exhibits a weight-average molecular mass of less than or equal to 100 000 (ranging in particular from 1 000 to 100 000), especially of less than 50 000 (ranging in particular from 1 000 to 10 000) and more especially ranging from 1 000 to 15 30 000, preferably from 2 000 to 20 000 and better still from 2 000 to 10 000.

- Mention may be made, as preferred first polymers which can be used in the invention, of 20 polyamides branched by pendent fatty chains and/or end fatty chains having from 6 to 120 carbon atoms and better still from 8 to 120 and in particular from 12 to 68 carbon atoms, each end fatty chain being bonded to the polyamide backbone via at least one bonding group, 25 in particular an ester group. Preferably, these polymers comprise a fatty chain at each end of the polymer backbone and in particular of the polyamide backbone. Mention may be made, as other bonding group,

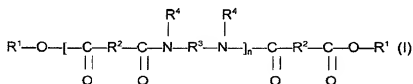
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of ether, amine, urea, urethane, thioether, thioester, thiourea or thiourethane groups.

These first polymers are preferably polymers resulting from a polycondensation between a

- 5 dicarboxylic acid having at least 32 carbon atoms (having in particular from 32 to 44 carbon atoms) with a diamine having at least 2 carbon atoms (in particular from 2 to 36 carbon atoms). The diacid is preferably a dimer resulting from a fatty acid comprising ethylenic
- 10 unsaturation having at least 16 carbon atoms, preferably from 16 to 24 carbon atoms, such as oleic acid, linoleic acid or linolenic acid. The diamine is preferably ethylenediamine, hexylenediamine or hexamethylenediamine. For polymers comprising one or 2
- 15 end carboxylic acid groups, it is advantageous to esterify them with a monoalcohol having at least 4 carbon atoms, preferably from 10 to 36 carbon atoms and better still from 12 to 24 and even better still from 16 to 24, for example 18 carbon atoms.

- 20 These polymers are more especially those disclosed in the document US-A-5 783 657 of Union Camp. Each of these polymers satisfies in particular the following formula (I):



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in which n denotes a whole number of amide units such that the number of ester groups represents from 10% to 50% of the total number of the ester and amide groups; 5 R¹ is, in each case, independently an alkyl or alkenyl group having at least 4 carbon atoms and in particular from 4 to 24 carbon atoms; R² independently represents, in each case, a C₄ to C₄₂ hydrocarbonaceous group, provided that 50% of the R² groups represent a C₃₀ to C₄₂ 10 hydrocarbonaceous group; R³ independently represents, in each case, an organic group provided with at least 2 carbon atoms, with hydrogen atoms and optionally with one or more oxygen or nitrogen atoms; and R⁴ independently represents , in each case, a hydrogen 15 atom, a C₁ to C₁₀ alkyl group or a direct bond to R³ or to another R⁴, so that the nitrogen atom to which both R³ and R⁴ are bonded forms part of a heterocyclic structure defined by R⁴-N-R³, with at least 50% of the R⁴ groups representing a hydrogen atom.

20 In the specific case of the formula (I), the optionally functionalized end fatty chains within the meaning of the invention are end chains bonded to the final heteroatom, in this instance nitrogen, of the polyamide backbone.

25 In particular, the ester groups of the formula (I), which form part of the end and/or pendent fatty chains within the meaning of the invention, represent from 15 to 40% of the total number of the

ester and amide groups and better still from 20 to 35%. Furthermore, n advantageously represents an integer ranging from 1 to 5 and better still of greater than 2, in particular ranging from 3 to 5. Preferably, R^1 is a C₁₂ to C₂₂ alkyl group and preferably a C₁₆ to C₂₂ alkyl group. Advantageously, R^2 can be a C₁₀ to C₄₂ hydrocarbonaceous (alkylene) group. Preferably, at least 50% and better still at least 75% of the R^2 groups are groups having from 30 to 42 carbon atoms. The other R^2 groups are C₄ to C₁₉ and even C₄ to C₁₂ hydrogenated groups. Preferably, R^3 represents a C₂ to C₃₆ hydrocarbonaceous group or a polyoxyalkylenated group and R^4 represents a hydrogen atom. Preferably, R^3 represents a C₂ to C₁₂ hydrocarbonaceous group.

The hydrocarbonaceous groups can be linear, cyclic or branched and saturated or unsaturated groups. Furthermore, the alkyl and alkylene groups can be linear or branched and saturated or unsaturated groups.

The polymers of formula (I) are generally provided in the form of blends of polymers, it being possible for these blends to additionally comprise a synthetic product corresponding to a compound of formula (I) where n has the value 0, that is to say a diester.

Mention may be made, as examples of first polymers according to the invention, of the commercial products sold by Arizona Chemical under the names Uniclear® 80 and Uniclear® 100. They are sold

respectively in the form of an 80% (as active material) gel in a mineral oil and of a 100% (as active material) gel. They have a softening point of 88 to 94°C. These commercial products are a blend of copolymers of a C₃₆ diacid condensed with ethylenediamine, with a weight-average molecular mass of approximately 6 000. The end ester groups result from esterification of the remaining acid endings with cetyl alcohol, stearyl alcohol or their mixtures (also known as cetearyl alcohol).

Mention may also be made, as first polymer which can be used in the invention, of polyamide resins resulting from the condensation of an aliphatic dicarboxylic acid and of a diamine (including compounds having more than 2 carbonyl groups and 2 amine groups), the carbonyl and amine groups of adjacent individual units being condensed via an amide bond. These polyamides are in particular those sold under the Versamid® trademark by General Mills Inc. and Henkel Corp. (Versamid® 930, 744 or 1655) or by Olin Mathieson Chemical Corp. under the Onamid® trademark, in particular Onamid® S or C. These resins have a weight-average molecular mass ranging from 6 000 to 9 000. For further information on these polyamides, reference may be made to the documents US-A-3 645 705 and US-A-3 148 125. More especially, Versamid® 930 or 744 is used.

It is also possible to use the polyamides

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sold by Arizona Chemical under the Uni-Rez® references (2658, 2931, 2970, 2621, 2613, 2624, 2665, 1554, 2623, 2662) and the product sold under the reference Macromelt 6212 by Henkel. For further information on these polyamides, reference may be made to the document US-A-5 500 209.

It is also possible to use polyamide resins resulting from vegetables, such as those disclosed in Patents US-A-5 783 657 and US-A-5 998 570, the contents of which are incorporated by way of reference in the present application.

The first polymer present in the composition according to the invention advantageously has a softening temperature of greater than 65°C and which can range up to 190°C. Preferably, it exhibits a softening temperature ranging from 70 to 130°C and better still from 80 to 105°C. The first polymer is in particular a nonwaxy polymer.

The first polymer according to the invention preferably corresponds to the formula (I) mentioned above. This first polymer exhibits, because of their fatty chain(s), good solubility in oils and thus results in macroscopically homogeneous compositions, even with a high level (at least 25%) of polymer, in contrast to polymers devoid of a fatty chain.

The first polymer can be present in the composition according to the invention in a content ranging from 0.1% to 60% by weight with respect to the

total weight of the composition, preferably ranging from 0.5% to 30% by weight and better still ranging from 1% to 20% by weight.

- The liquid organic phase of the composition
- 5 according to the invention additionally comprises at least one volatile organic solvent, namely one or more volatile solvents.

- The term "volatile organic solvent" is understood to mean, within the meaning of the
- 10 invention, any nonaqueous medium capable of evaporating on contact with the skin or nails in less than one hour at ambient temperature and atmospheric pressure. The volatile solvent or solvents of the invention are organic solvents and in particular volatile cosmetic
- 15 oils which are liquid at ambient temperature and which have a nonzero vapour pressure, at ambient temperature and atmospheric pressure, ranging in particular from 10^{-3} to 300 mm of Hg (0.013 Pa to 40 000 Pa) and preferably of greater than 0.1 mm of Hg (10 Pa) and
- 20 better still of greater than 0.3 mm of Hg (30 Pa).

- According to the invention, these volatile solvents in particular facilitate the application of the composition to the nails. These solvents can be hydrocarbonaceous solvents, silicone solvents
- 25 optionally comprising pendent alkyl or alkoxy groups or alkyl or alkoxy groups at the end of the silicone chain, or a mixture of these solvents. Preferably, these solvents are not alcohols comprising at least 7

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carbon atoms.

Advantageously, the liquid organic phase of the composition comprises at least one volatile organic solvent or a mixture of volatile organic solvents (within the meaning of the final mixture) exhibiting mean Hansen solubility parameters δD , δP and δH at 25°C which satisfy the following conditions:

$$15 \leq \delta D \leq 19$$

$$\delta P \leq 10$$

$$10 \quad \delta H \leq 10$$

Consequently, a subject matter of the invention is a cosmetic composition comprising an organic phase, a first polymer and a second additional film-forming polymer, the organic phase comprising at least one volatile organic solvent or a mixture of volatile organic solvents exhibiting mean Hansen solubility parameters δD , δP and δH at 25°C which satisfy the conditions defined above.

Another subject matter of the invention is a nail polish composition comprising an organic phase, a first polymer and a second additional film-forming polymer, the organic phase comprising at least one volatile organic solvent or a mixture of volatile organic solvents exhibiting mean Hansen solubility parameters δD , δP and δH at 25°C which satisfy the conditions defined above.

The definition of the solvents in the three-dimensional solubility space according to Hansen is

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described in the article by C.M. Hansen: "The three-dimensional solubility parameters", J. Paint Technol., 39, 105 (1967):

- dD characterizes the London dispersion forces
- 5 resulting from the formation of dipoles induced during molecular impacts;
- dP characterizes the forces of Debye interaction between permanent dipoles and the forces of Keesom interactions between induced dipoles and permanent
- 10 dipoles;
- dH characterizes the forces of specific interactions (hydrogen bond, acid/base or donor/acceptor type and the like).

The parameters dD, dP and dH are expressed in $(\text{J}/\text{cm}^3)^{1/2}$.

- 15 Use is preferably made of an organic solvent such that $dP \leq 5$; $dH \leq 9$.

Advantageously, dD, dP and dH obey the relationship

$$\sqrt{4(17 - dD)^2 + dP^2 + dH^2} < L$$

- 20 L being equal to 10 $(\text{J}/\text{cm}^3)^{1/2}$ and better still 9 $(\text{J}/\text{cm}^3)^{1/2}$.

- Mention may be made, as volatile organic solvent which can be used in the invention, of volatile
- 25 hydrocarbonaceous oils having from 4 to 16 carbon atoms and their mixtures and in particular linear C_6 - C_{10} alkanes, such as n-hexane, n-heptane or n-octane,

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branched C₈-C₁₆ alkanes, such as C₈-C₁₆ isoalkanes (also known as isoparaffins), isododecane, isodecane, isohexadecane and, for example, the oils sold under the tradenames of Isopars or Permetyls, esters having from 4 to 8 carbon atoms, such as ethyl acetate, n-propyl acetate, isobutyl acetate or n-butyl acetate, branched C₈-C₁₆ esters, such as isohexyl neopentanoate, and their mixtures. Preferably, the volatile organic solvent is chosen from volatile hydrocarbonaceous oils having from 4 to 10 carbon atoms and their mixtures.

Mention may be made, as other volatile organic solvent which can be used in the invention, of linear or cyclic silicone oils having a viscosity at ambient temperature of less than 8 centistokes (8 10^{-6} m²/s) and having in particular from 2 to 7 silicon atoms, these silicones optionally comprising alkyl or alkoxy groups having from 1 to 10 carbon atoms. Mention may in particular be made, as volatile silicone oil which can be used in the invention, of octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, heptamethylhexyltrisiloxane, heptamethyloctyltrisiloxane, hexamethyldisiloxane, octamethyltrisiloxane, decamethyltetrasiloxane, dodecamethylpentasiloxane and their mixtures.

Use may also be made of volatile fluorinated solvents.

Use is preferably made of a volatile organic

solvent chosen from ethyl acetate, n-propyl acetate, isobutyl acetate, n-butyl acetate, heptane and their mixtures.

The volatile organic solvent can be present
5 in the composition according to the invention in a content ranging from 20% to 98% by weight with respect to the total weight of the composition, preferably from 30% to 90% by weight and better still from 40% to 85% by weight.

10 The organic phase of the composition according to the invention can additionally comprise a nonvolatile oil which can be a polar oil or a nonpolar oil. The nonvolatile oil can be present in a content ranging from 0.01% to 10% by weight with respect to the
15 total weight of the composition.

In particular, the polar oils can be chosen from:

- hydrocarbonaceous vegetable oils with a high content of triglycerides composed of esters of fatty acids and
20 of glycerol, the fatty acids of which can have various C_4 to C_{24} chain lengths, it being possible for the chains to be linear or branched and saturated or unsaturated; these oils are in particular wheat germ, maize, sunflower, karite, castor, sweet almond,
25 macadamia, apricot, soybean, cottonseed, alfalfa, poppy, pumpkinseed, sesame, cucumber, rapeseed, avocado, hazelnut, grape seed, blackcurrant seed, evening primrose, millet, barley, quinoa, olive, rye,

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- safflower, candlenut, passionflower or musk rose oils;
 or triglycerides of caprylic/capric acids, such as
 those sold by Stearineries Dubois or those sold under
 the names Miglyol 810, 812 and 818 by Dynamit Nobel;
- 5 - synthetic oils or synthetic esters of formula R_5COOR_6
 in which R_5 represents the residue of a linear or
 branched fatty acid comprising from 1 to 40 carbon
 atoms and R_6 represents a hydrocarbonaceous chain, in
 particular a branched hydrocarbonaceous chain,
- 10 comprising from 1 to 40 carbon atoms, provided that
 $R_5 + R_6$ is ≥ 10 , such as, for example, purcellin oil
 (cetearyl octanoate), isononyl isononanoate, C_{12} to C_{15}
 alkyl benzoate, isopropyl myristate, 2-ethylhexyl
 palmitate, isostearyl isostearyl, or octanoates,
- 15 decanoates or ricinoleates of alcohols or polyalcohols;
 hydroxylated esters, such as isostearyl lactate or
 diisostearyl malate; and pentaerythritol esters;
- synthetic ethers having from 10 to 40 carbon atoms;
 - C_8 to C_{26} fatty alcohols, such as oleyl alcohol;
- 20 - their mixtures.

The nonpolar oils according to the invention
 are in particular silicone oils, such as linear or
 cyclic polydimethylsiloxanes (PDMSs) which are liquid

25 at ambient temperature; polydimethylsiloxanes
 comprising pendent alkyl, alkoxy or phenyl groups
 and/or alkyl, alkoxy or phenyl groups at the end of the
 silicone chain, which groups have from 2 to 24 carbon

atoms; phenylated silicones, such as phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxydiphenyl-siloxanes, diphenyl dimethicones, diphenylmethyl-diphenyltrisiloxanes or
5 (2-phenylethyl)trimethyl-siloxysilicates; linear or branched hydrocarbons of synthetic or mineral origin, such as liquid paraffins and its derivatives, petrolatum, liquid lanolin, polydecenes, hydrogenated polyisobutene, such as parleam, or squalane; and their
10 mixtures.

Preferably, the oils are nonpolar oils and more especially an oil or a mixture of oils of the hydrocarbonaceous type of mineral or synthetic origin chosen in particular from hydrocarbons, especially
15 alkanes, such as parleam oil, isoparaffins, such as isododecane and squalane, and their mixtures. Advantageously, these oils are used in combination with one or more phenylated silicone oils.

Preferably, use is made of a nonvolatile oil
20 such that the mixture of volatile organic solvent and of nonvolatile oil exhibits mean Hansen solubility parameters dD, dP and dH at 25°C which satisfy the conditions defined above.

According to a specific form of the
25 invention, for a liquid organic phase structured by a polymer comprising a partially silicone-comprising backbone, this organic phase preferably comprises more than 40% of the total weight of the liquid organic

phase and better still from 50 to 100% of silicone-comprising volatile organic solvent or of silicone-comprising nonvolatile oils with respect to the total weight of the liquid organic phase.

5 According to another specific form of the invention, for a liquid organic phase structured by a nonpolar polymer of the hydrocarbonaceous type, this organic phase advantageously comprises more than 40% by weight and better still from 50 to 100% of hydro-
10 carbonaceous volatile organic solvent or of hydrocarbonaceous nonpolar nonvolatile oil with respect to the total weight of the liquid organic phase.

 The total liquid organic phase represents, in practice, from 5 to 99% of the total weight of the
15 composition, preferably from 20 to 75%.

 According to the invention, the composition can be a stick having a hardness ranging from 30 to 300 g and better still from 30 to 250 g, in particular from 30 to 150 g, preferably from 30 to 120 g and, for
20 example, from 30 to 50 g. The hardness of the composition according to the invention can be measured by the "cheesewire" method, which consists in cutting a stick of lipstick with a diameter of 12.7 mm and in measuring the hardness at 20°C by means of a DFGHS 2
25 dynamometer from Indelco-Chatillon moving at a rate of 100 mm/minute. It is expressed as the shear force (expressed in grams) needed to cut a stick under these conditions.

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The hardness of the composition can also be measured by the method of penetration of a probe into said composition and in particular using a texture analyzer (for example TA-XT2i from Rhéo) equipped with an ebonite cylinder with a height of 25 mm and a diameter of 8 mm. The hardness measurement is carried out at 20°C at the center of five samples of said composition. The cylinder is introduced into each composition sample at a prerate of 2 mm/s, then at a rate of 0.5 mm/s and, finally, at a postrate of 2 mm/s, the total displacement being 1 mm. The value recorded of the hardness is that of the maximum peak. The measurement error is +/- 50 g. According to this method, the hardness of the composition stick can range from 20 to 2 000 g, in particular from 20 to 1 500 g and better still from 20 to 900 g, for example from 50 to 600 g or even better still from 150 to 450 g.

The hardness of the composition according to the invention is such that the composition is advantageously self-supporting and can easily disintegrate to form a satisfactory layer on the nails. In addition, with this hardness, the composition of the invention possesses good impact strength.

The hardness of the composition according to the invention is such that the composition is self-supporting and can easily disintegrate to form a satisfactory layer on the nails. In addition, with this hardness, the composition of the invention possesses

good impact strength.

Advantageously, the composition of the invention additionally comprises at least one subsidiary film-forming polymer other than said first
5 polymer as described above.

The film-forming polymer can be chosen from cellulose polymers, such as nitrocellulose, cellulose acetate, cellulose acetate butyrate, cellulose acetate propionate or ethyl cellulose, or alternatively
10 polyurethanes, acrylic polymers, vinyl polymers, polyvinylbutyrals, alkyd resins, resins resulting from aldehyde condensation products, such as aryl-sulfonamide-formaldehyde resins, for example toluene-sulfonamide-formaldehyde resin, or arylsulfonamide-
15 epoxy resins.

Use may in particular be made, as film-forming polymer, of nitrocellulose RS 1/8 sec.; RS 1/4 sec.; 1/2 sec.; RS 5 sec.; RS 15 sec.; RS 35 sec.; RS 75 sec.; RS 150 sec.; AS 1/4 sec.; AS
20 1/2 sec.; SS 1/4 sec.; SS 1/2 sec.; SS 5 sec.; sold in particular by Hercules; toluenesulfonamide-formaldehyde resin "Ketjentflex MS80" from Akzo or "Santolite MHP" or "Santolite MS 80" from Faconnier or "Resimpol 80" from Pan Americana, alkyd resin "Beckosol ODE 230-70-E"
25 from Dainippon, acrylic resin "Acryloid B66" from Röhm & Haas, or polyurethane resin "Trixene PR 4127" from Baxenden.

The subsidiary film-forming polymer can be

present in the composition according to the invention in a content ranging from 0.1% to 60% by weight with respect to the total weight of the composition, preferably ranging from 2% to 40% by weight and better
5 still from 5% to 25% by weight.

The composition of the invention can additionally comprise any additive conventionally used in the field under consideration chosen in particular from coloring materials, antioxidants, preservatives,
10 fragrances, fillers, waxes, neutralizing agents, cosmetic or dermatological active principles, such as, for example, emollients, moisturizers or vitamins, spreading agents, sunscreens, and their mixtures. These additives can be present in the composition in a
15 proportion of 0 to 20% (in particular of 0.01 to 20%) of the total weight of the composition and better still of 0.01 to 10%.

Of course, a person skilled in the art will take care to choose the optional additional additives
20 and/or their amount so that the advantageous properties of the composition according to the invention are not, or not substantially, detrimentally affected by the envisaged addition.

Of course, the composition of the invention
25 must be cosmetically or dermatologically acceptable, namely must comprise a nontoxic physiologically acceptable medium capable of being applied to the skin or superficial body growths of human beings. The term

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"cosmetically acceptable" is understood to mean, within the meaning of the invention, a composition with a pleasant appearance, a pleasant smell and a pleasant feel.

5 The coloring material according to the invention can be chosen from lipophilic dyes, pigments and pearlescent agents commonly used in cosmetic or dermatological compositions, and their mixtures. This coloring material is generally present in a proportion
10 of 0.01 to 10% of the total weight of the composition, preferably of 0.1 to 8%, if it is present.

 The fat-soluble dyes are, for example, Sudan red, DC Red 17, DC Green 6, β -carotene, soybean oil, Sudan brown, DC Yellow 11, DC Violet 2, DC Orange 5 or
15 quinoline yellow. They can represent from 0.1 to 10% of the weight of the compositions and better still from 0.1 to 6%.

 The pigments can be white or colored, inorganic and/or organic and coated or uncoated.
20 Mention may be made, among inorganic pigments, of titanium dioxide, which is optionally surface treated, zirconium or cerium oxides and iron or chromium oxides, manganese violet, ultramarine blue, chromium hydrate and ferric blue. Mention may be made, among organic
25 pigments, of carbon black, pigments of D & C type and lakes based on cochineal carmine or on barium, strontium, calcium or aluminum. The pigments can represent from 0.1 to 50% and better still from 2 to

30% of the total weight of the composition, if they are present.

The pearlescent pigments can be chosen from white pearlescent pigments, such as mica covered with titanium oxide or with bismuth oxychloride, colored pearlescent pigments, such as titanium oxide-coated mica with iron oxides, titanium oxide-coated mica with in particular ferric blue or chromium oxide, or titanium oxide-coated mica with an organic pigment of the abovementioned type, and pearlescent pigments based on bismuth oxychloride. They can represent from 0.1 to 20% of the total weight of the composition and better still from 0.1 to 15%, if they are present.

The composition according to the invention can be manufactured by known processes used generally in the cosmetics or dermatological field.

The invention is illustrated in more detail in the following example. The percentages are given by weight.

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Example 1:

A nail polish having the following composition was prepared:

- Resin formed from polyamide with end ester groups, sold under the name "Uniclear® 100" by Arizona Chemical 20 g
- Nitrocellulose 8 g
- Pigments 1 g
- Butyl acetate q.s. for 100 g

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The nail polish is provided in the form of a structured solid composition, such as a stick.

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